Rapid Optical Screening Tool (ROST™)
A revolutionary method for site characterization

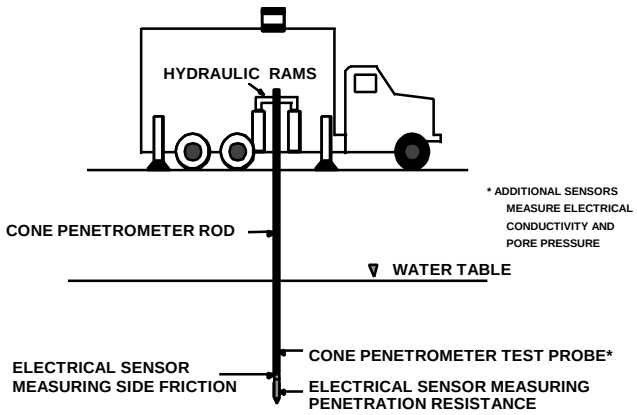
A Partnership between DOD, Industry, and Academia

THE PROBLEM:

Cleanup costs for U.S. government sites alone may run as high as $500 billion. The cost of characterizing and monitoring these sites could exceed $100 billion using traditional technologies. Screening of hazardous waste sites normally involves drilling boreholes and installing monitoring wells. The process is slow and expensive, and results are often inconclusive. In many instances, the Rapid Optical Screening Tool (ROST™) can cut these characterization and monitoring costs in half.

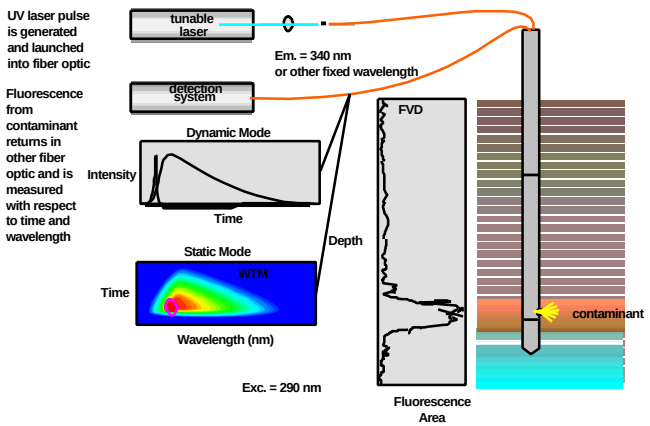
APPROACH:

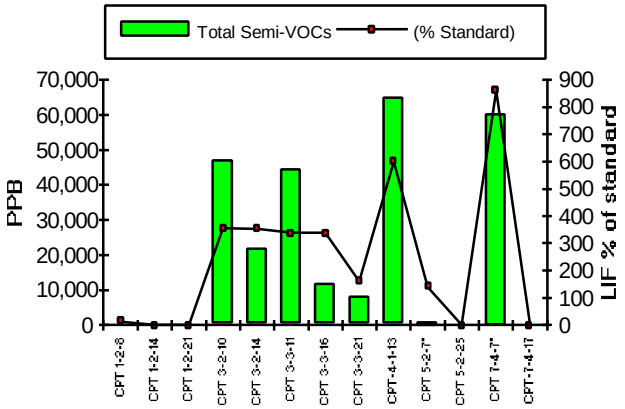
In 1993, the US Air Force Armstrong Laboratory and Unisys Corporation signed a Cooperative Research and Development Agreement (CRDA) to commercialize fiber optic technology that had been developed by the Air Force at North Dakota State University (NDSU). A consortium of the CRDA partners, Dakota Technologies Inc., and NDSU commercialized ROST™ through the Advanced Research Projects Agency, Technology Reinvestment Project. Environmental investigators can now classify and map the distribution of many hazardous chemicals in the field instead of waiting for analytical laboratory reporting.



THE SOLUTION:

ROST™ is a state-of-the-art Laser-Induced Fluorescence (LIF) sensing system used with Cone Penetrometer Technology (CPT) to detect hydrocarbons in soil and water. Capabilities include gasoline, jet fuel, diesel fuel, and polycyclic aromatic hydrocarbons (PAHs). Ongoing research is developing techniques to detect and monitor contaminants such as chlorinated solvents, which do not naturally fluoresce.





SENSITIVITY:

LIF technology for *in sit u*detection of aromatic hydrocarbons is now a viable, field-proven, commercially available technology. In the field, ROST™ consistently obtained detection limits below 50 mg/kg in sandy soils. During EPA Environmental Technology Verification (ETV) testing, ROST™ averaged greater than 90% correlation with conventional sampling per EPA Method 418.1, with less than 5% false negatives.

PAYOFF:

ROST™ and related technologies represent a landmark development in site characterization. Environmental investigators are able to find, classify, and map the distribution of many contaminants in just a few days. Environmental managers may determine if remediation is needed, what remediation technology should be applied, whether the remediation is working, and when the cleanup effort is complete, minimizing risk, time, labor, and cost.

COMMERCIALIZATION:

ROST™ technology was purchased June 1996 by Fugro Geosciences, Inc., a pioneer in the development of CPT, and a recognized world leader in the industry. Fugro is now making the ROST™ system available for hydrocarbon-contaminated site characterization in North America and Europe. In the past 10 years, CPT has become the preferred method for conducting *in sit u*environmental investigations of subsurface conditions. ROST™ has successfully completed verification through the EPA ETV program.

POINTS OF CONTACT:

Bruce J. Nielsen Ph: (850) 283-6227
AFRL/MLQE Fax: (850) 283-6064
139 Barnes Dr, Suite 2
Tyndall AFB FL 32403-5323
bruce.nielsen@mlq.afrl.af.mil

Andy Taer or Recep Yilmaz Ph: (800) 753-8476
Fugro Geosciences